PATENT SPECIFICATION

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507,104

6. Juli 1939

PROVISIONAL SPECIFICATION

Improvements relating to Self-locking Nuts and like Internally Screw-threaded Members

We, OLIVER EDWIN SIMMONDS, a British subject, of Shell-Mex House, Strand, London, W.C.2, and SIMMONDS DEVELOPMENT CORPORATION LIMITED, a British Company, of 18, Essex Street, Strand, London, W.C.2, do hereby declare the nature of this invention to be as follows:—

This invention relates to self-locking nuts and like internally screw-threaded members hereinafter referred to as a nut, having an inset of elastic material, such as hard vulcanized fibre, so disposed that when the nut is screwed on a bolt or like externally screw-threaded member, hereinafter referred to as a bolt, the threads of the bolt penetrate into the elastic inset, which is thereby impressed with the thread of the bolt, and unintentional relative rotary movement between the nut and bolt is prevented.

When nuts of this kind are to be used under such conditions that the material of the elastic inset would be exposed to the deleterious action of a fluid or solid, for example, when the nuts are to be used in certain tanks, the end of the nut adjacent the elastic inset has heretofore been fitted with a metal cap so that the solid or fluid is prevented from coming into contact with the elastic inset. With such metal caps however, difficulty is experienced in ascertaining whether or no the nut is securely locked. In order to obtain an effective locking it is necessary that the threads of the bolt penetrate into the elastic inset throughout its length. With the nuts heretofore employed having metal caps, it has been possible to ensure this condition only by very careful measurements.

The difficulties above mentioned are overcome in accordance with this invention by securing to the end of the nut adjacent the elastic inset a cap of transparent material which is not detrimentally affected by the fluid or solid with which it is to come into contact and which prevents such fluid or solid from coming into contact with the elastic inset. In this manner it is possible to ascertain quickly and accurately the position of a bolt relatively to the elastic inset and thus to ensure that the bolt extends into the nut sufficiently to give an effective lock.

In a preferred form of self-locking nut in accordance with this invention, the nut is formed at one end thereof with a recess in which there is housed an elastic inset consisting of one or more apertured discs or short tubes, the hole of which is of less diameter than the maximum interior diameter of the screw-threaded bore of the nut, and the transparent cap is substantially cup-shaped and formed with an annular flange or rim whereby it is secured to the nut. The transparent cap may advantageously be secured to the nut by an inwardly-turned edge portion thereof which also serves to retain the elastic inset in its recess.

The elastic inset may, if desired, consist of one or more plugs arranged in one or more longitudinally-extending recesses formed in the nut.

Dated this 19th day of February, 1938.

PHILIP S. ALLAM,
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Agent for the Applicants.

COMPLETE SPECIFICATION

Improvements relating to Self-locking Nuts and like Internally Screw-threaded Members.

We, OLIVER EDWIN SIMMONDS, a British subject, of Shell-Mex House, Strand, London, W.C.2, and SIMMONDS DEVELOPMENT CORPORATION LIMITED, a British Company, of 18, Essex Street, Strand, London, W.C.2, do hereby declare the nature of this invention and in what manner the same is to

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be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to self-locking nuts and like internally screw-threaded members, hereinafter referred to as a nut, having an inset of elastic material, such as hard vulcanised fibre, so disposed that when the nut is screwed on to a bolt or like externally screw-threaded member, hereinafter referred to as a bolt, the threads of the bolt penetrate into the elastic inset, which is thereby impressed with the thread of the bolt, and unintentional relative rotary movement between the nut and bolt is prevented. Nuts of this kind are disclosed in Specification Nos. 228,505 and 296,636.

When nuts of this kind are to be used under such conditions that the material of the elastic inset would be exposed to the deleterious action of a fluid or solid, for example, when the nuts are to be used in certain tanks, the end of the nut adjacent the elastic inset has heretofore been fitted with a metal cap so that the solid or fluid is prevented from coming into contact with the elastic inset. With such metal caps, however difficulty is experienced in ascertaining whether or no the nut is securely locked. In order to obtain an effective locking it is necessary that the threads of the bolt penetrate into the elastic inset throughout its length. With the nuts heretofore employed having metal caps, it has been possible to ensure this condition only by very careful measurements.

The difficulties above mentioned are overcome in accordance with this invention by closing the non-working end of the nut by a cap of transparent material which is not detrimentally affected by the fluid or solid with which it is to come into contact and which prevents such fluid or solid from coming into contact with the elastic inset. In this manner it is possible to ascertain quickly and accurately the position of a bolt relatively to the elastic inset and thus to ensure that the bolt extends into the nut sufficiently to give an effective lock.

A self-locking nut in accordance with this invention is illustrated in the accompanying drawing, in which

Figure 1 is an elevational view, partly in section, and

Figure 2 is a plan view.

Referring to the drawing, the nut 1 is formed at its non-working end with a cylindrical recess 2 in which there is housed an annular disc 3 of hard vulcanised fibre or other suitable elastic material, the hole in the said annular disc being of less diameter than the maximum interior diameter of the screw-threaded bore of the nut. The non-working end of the nut is closed by the substantially cup-shaped cap 4 which is made of a suitable transparent material, for example, the materials known as Perspex and Rhodoid (Registered Trade Mark). The said cap 4 is formed with an outwardly-extending annular flange or rim 5 by which it is secured to the nut by means of the inwardly-turned edge portion 6 of the nut, such edge portion 6 also serving to retain the disc 3 in its recess.

Means are preferably provided to prevent relative rotary movement between the elastic inset and the nut. For example, as shown in the drawing, the wall of the recess 2 may be formed with an inwardly-extending projection 7 against which the disc 3 is forced on its insertion into the recess whereby the projection 7 is caused to penetrate into the disc, as disclosed in specification No. 438,253.

The elastic inset may, if desired, consist of a plurality of apertured discs or short tubes. Alternatively, the elastic inset may consist of one or more plugs arranged, for example, in one or more longitudinally extending recesses formed in the nut.

Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to be performed, we declare that what we claim is:—

1. A self-locking nut having an inset of elastic material so disposed that when the nut is screwed on to a bolt, the threads of the bolt penetrate into the elastic inset, wherein the non-working end of the nut is closed by a cap of transparent material.

2. A self-locking nut as claimed in Claim 1, wherein the elastic inset comprises one or more annular discs or short tubes, the hole of which is of less diameter than the maximum interior diameter of the screw-threaded bore of the nut.

3. A self-locking nut as claimed in Claim 2, wherein the transparent cap is formed with an outwardly-extending annular flange or rim and is secured to the nut by an inwardly-turned edge portion thereof which also serves to retain the elastic inset in its recess.

4. A self-locking nut constructed and adapted to operate substantially as hereinbefore described with reference to the accompanying drawing.

Dated this 23rd day of January, 1939.

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Fig. 1.

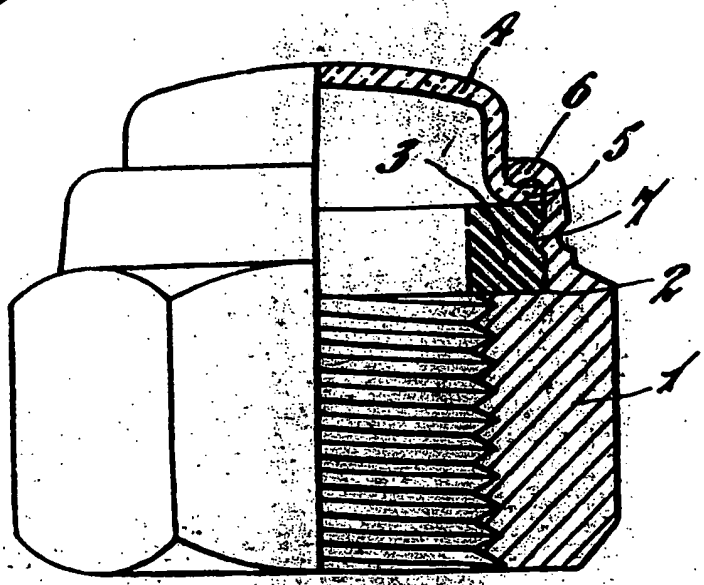
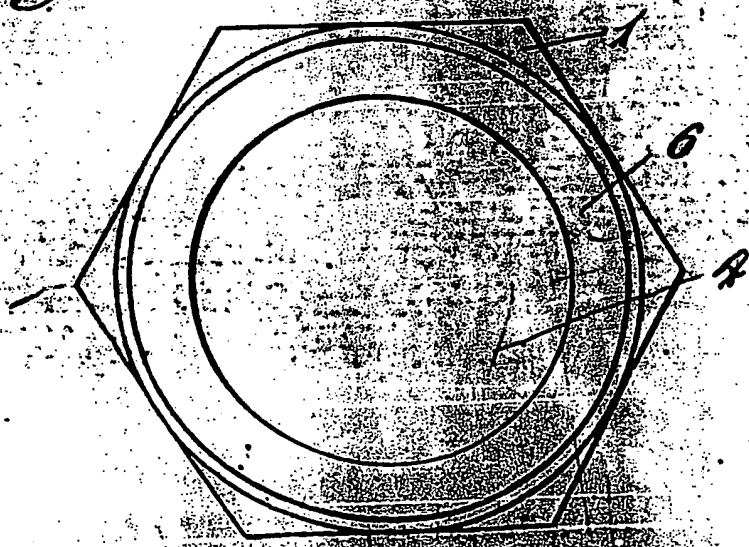


Fig. 2.



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